

REMARKS

Claims 1-46 are pending in the instant application. The Examiner has objected to claims 1, 45, and 46. In addition, the Examiner has rejected claims 1-46. Claims 1, 10, 14, 21, 24-26, 31-34, 38, and 45 have been amended. Claims 13, 37, and 46 have been cancelled, leaving claims 1-12, 14-36, and 38-45 for consideration upon entry of this amendment. The Applicants submit that claims 1-12, 14-36, and 38-45 are in condition for allowance and respectfully request reconsideration and withdrawal of the outstanding rejections. No new matter has been entered.

Objections to the Claims

Claims 1, 45, and 46 have been objected to because of informalities. In particular, the Examiner has objected to claims 1, 45, and 46 because the preamble recites "a method for converting" while the body of the claims makes no reference to converting or conversion. Claim 46 has been cancelled rendering the objection thereof moot. Claims 1 and 45 have been amended to clarify the conversion process of vertically structured model to the horizontally structured model, as required by the Examiner.

Rejections under 35 U.S.C. 101

Claims 1-46 have been rejected under 35 U.S.C. 101 because the claimed invention is allegedly directed to non-statutory subject matter. With respect to claims 1-20 and 45, the Examiner states these claims lack a concrete, useful, and tangible result. In addition, the Examiner states that claims 21-44 are non-statutory as being directed to functional descriptive material, or data structures *per se*. Also, claim 46 is rejected as being a non-statutory signal claim.

Claims 1 and 45 have been amended to clarify the conversion process of vertically structured model to the horizontally structured model. The

Applicants submit that claims 1 and 45 recite features that produce a concrete, useful, and tangible result. As amended, claims 1 and 45 recite a process for converting a vertically structured CAD/CAM model, (which identifies, e.g., a part to be manufactured), into a horizontally structured CAD/CAM model. As described in the Applicants' specification, horizontal modeling techniques provide many advantages over more conventional vertical modeling methods. However, re-creating existing vertical models, e.g., those stored in legacy systems, for use in horizontal modeling is expensive (Background). The conversion process recited in the Applicants' claims creates a horizontally structured model from existing vertically structured model data. Accordingly, the features recited in claims 1 and 45 recite statutory subject matter in accordance with 35 U.S.C. 101, as they produce a concrete, useful, and tangible result.

Claim 21 has been amended to recite a system for converting a vertically structured CAD/CAM model to a horizontally structured CAD/CAM model. The system includes a computer and a computer program executing on the computer for implementing the conversion of a vertically structured model to a horizontally structured model. Support for the amendment may be found throughout the Applicants' specification, e.g., Page 6, lines 14-26 and Page 18, lines 1-17. As amended, claim 21 is directed to a machine or manufacture, which is considered statutory subject matter pursuant to the provisions of 35 U.S.C. 101.

Claim 46 has been cancelled rendering the outstanding rejection moot. The Applicants respectfully request reconsideration and withdrawal of the rejections of claims 1-45.

Rejections under 35 U.S.C. 102

Claims 1-46 have been rejected under 35 U.S.C. 102(b) as being allegedly anticipated by Mok, Swee M. et al. "Automatic Generation of

Assembly Instructions using STEP.” Proc. Of the 2001 IEEE Int’l Conf. on Robotics & Automation. Seoul, Korea. May 21-26, 2001 (hereinafter “Mok”).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Moreover, “[t]he identical invention must be shown in as complete detail as is contained in the * * * claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Applicants traverse the outstanding rejections under 35 U.S.C. 102 because Mok does not teach each and every element of Applicants claims. Claims 1, 21 and 45 recite a method, system, and storage medium, respectively, for converting a vertically structured CAD/CAM model to a horizontally structured CAD/CAM model. Claims 1, 21, and 45 recite, *inter alia*, “wherein converting a vertically structured CAD/CAM model to a horizontally structured CAD/CAM model is performed by: restructuring each dependency for each said feature for placement with respect to the horizontal model, such that each feature exhibits a direct associative relationship with a reference feature, *said restructuring including: determining if said feature is dependent on an existing datum for placement*, if said feature is dependent on an existing datum for placement, then performing at least one of: *configuring a new reference feature for placement of said feature* wherein said reference feature is a descendent of said parent coordinate system and establishing an associative relationship between said feature and said new reference feature, then deleting said dependency, *reconfiguring said existing datum as a descendant of said parent coordinate system*; and establishing an associative relationship with at least one of said parent coordinate system and a descendent reference feature therefrom and deleting said dependency; and restructuring each dependency for each said feature for positioning with respect to the horizontal model, such that each feature exhibits a direct associative relationship with another reference feature.” Claims 1, 21, and 45 have been amended to include the features

recited in now cancelled claims 13 and 37. Thus, no new matter has been entered by this amendment.

Mok is directed to a method of generating assembly instructions using information extracted from STEP files. Mok is devoid of teaching converting a vertically-structured model to a horizontally-structured model as recited in the Applicants' claims. The conversion processes described in Mok relate to converting STEP-formatted data to SACS codes for assembling a designed product (Abstract and Introduction Section 1). This information is used to deduce the assembly tree and its SACS codes for the product (Page 316).

In addition, the method of Mok transforms part data to reference a single coordinate system (Figure 4, Page 316). Mok utilizes a boundary table and a feature table (Page 316, Tables 1 and 2, respectively). The feature table lists reference points for each feature of a product (column 3 of Table 2, Page 316). The reference points provide the location where the feature is located in the global reference coordinate system. There is no teaching in Mok of restructuring each dependency for each said feature for placement with respect to the horizontal model, such that each feature exhibits a direct associative relationship with a reference feature, *said restructuring including: determining if said feature is dependent on an existing datum for placement*. Nor does Mok teach if said feature is dependent on an existing datum for placement, then performing at least one of: *configuring a new reference feature for placement of said feature* wherein said reference feature is a descendent of said parent coordinate system and establishing an associative relationship between said feature and said new reference feature, then deleting said dependency, *reconfiguring said existing datum as a descendant of said parent coordinate system*; and establishing an associative relationship with at least one of said parent coordinate system and a descendent reference feature therefrom and deleting said dependency, as recited in Applicants' claims 1, 21, and 45.

For at least this reason, the Applicants submit that claims 1, 21 and 45 are not anticipated by Mok. Claims 2-12 and 14-20 depend from what should be an allowable claim 1. Claims 22-36 and 38-44 depend from what should be

an allowable claim 21. For at least these reasons, the Applicants submit that claims 1-12, 14-20, 21-36, and 38-45 are in condition for allowance.

Reconsideration and withdrawal of the outstanding rejections is respectfully requested.

CONCLUSION

It is believed that the foregoing remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance is requested. It is submitted that the foregoing remarks should render the case in condition for allowance.

Accordingly, as the cited references neither anticipate nor render obvious that which the Applicants deem to be the invention, it is respectfully requested that claims 1-12, 14-36, and 38-45 be passed to issue.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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